



**THE DATASHEET OF
7M-20.000MAHJ-T**



Features

Frequency range : 10MHz to 114MHz
 Ceramic SMD package
 Seam sealing
 External dimensions (mm)
 L : 3.2 x W : 2.5 x H : 0.7
 RoHS compliant & Pb free

Applications

Bluetooth, Wireless LAN
 Cellular phone, Pager, DSC
 Display, TV
 Computer peripherals
 Consumer products

Electrical Characteristics

| Item | | 7M | Conditions | | |
|--|-------------|---|----------------|---------|---------------|
| Frequency Range | F_0 | 10MHz ~ 114MHz | | | |
| Frequency Tolerance | F_{tol} | ±30ppm, ±20ppm, ±10ppm | at 25°C | | |
| Frequency Stability over Operating Temperature Range (refer to 25°C) | F_{stab} | ±30 ppm | -20°C ~ +70°C | | |
| | | ±20 ppm | | | |
| | | ±10 ppm | | | |
| | | | | ±10 ppm | -30°C ~ +85°C |
| | | | | ±30 ppm | -40°C ~ +85°C |
| | | | | ±20 ppm | |
| | | | | ±15 ppm | |
| | | ±60 ppm | -40°C ~ +125°C | | |
| Operating Temperature Range | T_{OTR} | -20°C ~ +70°C | | | |
| | | -40°C ~ +85°C | | | |
| | | -40°C ~ +125°C | | | |
| Shunt Capacitance | C_0 | 3pF Max. | | | |
| Drive Level | D_L | 1 ~ 200µW (100µW Typ.) | | | |
| Load Capacitance | C_L | 6pF, 8pF, 9pF, 10pF 12pF, 16pF, 18pF, 20pF | | | |
| Aging (at 25°C ± 3°C, first year) | F_{aging} | ±3ppm Max. | Note [1] | | |
| Storage Temperature Range | T_{STR} | -55°C ~ +125°C | | | |

Notes:

[1] Please contact us for low aging +/-1ppm grade crystals.

Motional Resistance (ESR)

| Fundamental | |
|-------------|-----------|
| 10 ~ 12 MHz | 150Ω Max. |
| 12 ~ 16 MHz | 80Ω Max. |
| 16 ~ 20 MHz | 60Ω Max. |
| 20 ~ 64 MHz | 50Ω Max. |

| 3rd Overtone | |
|--------------|----------|
| 60 ~ 80 MHz | 80Ω Max. |
| 80 ~ 114 MHz | 60Ω Max. |

Dimensions



Ordering Information



Packing



| DIMENSIONS | A | B | C | D | E | F | G | H |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1.65 | 3.40 | 2.70 | 4.00 | 8.00 | 4.00 | 1.55 | 1.75 |
| | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.20 | ±0.10 | ±0.05 | ±0.10 |

(Unit: mm)



| DIMENSIONS | L | L1 | W | W1 |
|------------|-------|-------|------|------|
| | 178 | 60.2 | 11.5 | 8 |
| | ±1.00 | ±0.50 | ±0.2 | ±0.1 |

(Unit: mm)

Reflow Profile

Solder melting point : $220^{\circ}\text{C} \pm 10^{\circ}\text{C}$, 60 sec. Min.

Peak temperature : $260^{\circ}\text{C} \pm 10^{\circ}\text{C}$, 10 sec. Min.





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